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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the installation structure of the cable and hose which are especially connected to tools for processing, such as welding, about the industrial robot which performs welding, cutting, etc.

[0002]

[Description of the Prior Art] when form the member which constitute robot bodies , such as the base , the turning section , and each arm , from an industrial robot equipped with the multi-joint arm in the shape of hollow , wire the centrum within a robot body in the cable which supply power to the motor for actuation of the driving shaft of each joint and operate an arm conventionally , the thing it be made not to contact an external body be indicate (for example , JP,62-213988,A , JP,1-138687,U , JP,62-58188,U) . It is [as opposed to / as shown in drawing 3 in this case / the underside of the base 1] the vertical fixed pivot S1. The turning section 2 it was made to circle around is formed. A reducer 3 is formed in a part for the connection of the base 1 and the turning section 2, and it is a fixed pivot S1 to a reducer 3. Centrum 3a of this alignment is prepared, and it lets the cable 10 drawn into the interior of the base 1 from the exterior pass to centrum 3a, and is made to have connected with the motor for actuation of the driving shaft of each joint established above through and the turning section 2 into the turning section 2. In the turning section 2, it is the rotation shaft S2 about the 1st arm 4. It supports so that it may rotate around, and in the 1st arm 4, it is the rotation shaft S3 about the 2nd arm 5. It has supported so that it may rotate around. At the head of the 2nd arm 5, it is the wrist section 6 Rotation shaft S4 It has supported so that it may rotate around, and the tools 7 for processing, such as a welding torch and a cutter, are attached in the wrist section 6. The power cable (it abbreviates to the hose for tools hereafter) 8 linked to the tool motor which drives the hose which sends the welding caution line linked to the tool 7 for processing and coat gas, and a tool is supported through the mounting member 81 which established the stand 9 in the back or the upper part of a robot body, gave slack, lifted the hose 8 for tools, and was further prepared in the 1st arm 4 and the 2nd arm 5.

[0003]

[Problem(s) to be Solved by the Invention] However, with the conventional technique, there was a fault that needed large space for supporting or actuation of an arm was restricted so that there may be no trouble in actuation of each arm of a robot in the hose for tools. This invention processes the hose linked to a tool in narrow space, and aims at offering the industrial robot which does not give a limit to actuation of an arm.

[0004]

[Means for Solving the Problem] The supporter material which has the centrum which prepared this invention in accordance with the vertical fixed pivot to the underside of the base in order to solve the above-mentioned problem, The turning section it was made to circle around said fixed pivot on said base, Said base and the reducer which has the input shaft of the shape of hollow established between the turning sections, In the industrial robot equipped with the arm prepared so that it might rotate above said

turning section, the tool for processing attached at the head of said arm, and the hose for tools linked to said tool for processing The guide tube which passes along the inside of the input shaft of the shape of hollow of said reducer, and penetrates the up frame of said turning section from the lower part of said base, Prepare the duct section formed between said bases and said supporter material, and it pulls out above said turning section through said hose for tools in said guide tube from the underside of said base. The cable which supplies power to the motor for robot actuation is contained in said duct section at U typeface.

[0005]

[Function] Since the guide tube which penetrates the up frame of the turning section from the lower part of the base is prepared as it becomes a fixed pivot and this alignment, and it is letting the hose for tools pass with the above-mentioned means, even if it circles in the turning section, it only circles around a guide tube, the hose for tools pulled out from the guide tube do not bar actuation of each arm, and each arm does not bar actuation of each arm.

[0006]

[Example] Hereafter, the example which shows this invention in drawing is explained. The side elevation in which drawing 1 shows the example of this invention, and drawing 2 are important section sectional side elevations. the stand with which 1 installs the base and 11 installs the base 1 in drawing, and 12 -- the underside of the base 1 -- receiving -- vertical fixed pivot S1 It is the supporter material which meets and has prepared centrum 12a. The base 1 surrounds the supporter material 12 and has formed the duct section 13 which contains a cable 10 between the supporter material 12. 2 is a fixed pivot S1 on the base 1. The turning section it was made to circle around, and 21 are the up frames of the turning section 2. The fixed part of the reducer which prepared 3 between the base 1 and the turning section 2, and the reducer 3 which fixed 31 to the supporter material 12, the hollow-like input shaft with which 32 was supported by the fixed part 31 through bearing 33, and 34 are fixed to the turning section 2 with the output shaft. 35 is a reducer style which combines an input shaft 32 and an output shaft 34. 36 is the drive motor attached in the turning section 2, drives an input shaft 32 through spur gears 37 and 38, is slowed down by the reducer style 35, rotates an output shaft 34, and has circled in the turning section 2. 22 is the guide tube which passes along the inside of the input shaft 32 of a reducer 3, and penetrates the up frame 21 of the turning section 2 from the lower part of the base 1, and is a fixed pivot S1. It is made to be this alignment. 14 is the oil seal for water proof and protection against dust prepared between the base 1 and the guide tube 22. 4 is the rotation shaft S2 to the up frame 21 of the turning section 2. The 1st arm supported so that it might rotate around, and 5 are the rotation shaft S3 to the 1st arm 4. It is the 2nd arm supported so that it might rotate around. 6 is rotation shaft S4 at the head of the 2nd arm 5. The wrist section supported so that it might rotate around, and 7 are tools for processing attached in the wrist section 6, such as a welding torch and a cutter.

[0007] The cable 10 which transmits the output signal of the power which drives the drive motor 36 which drives the turning section 2 and the 1st arm 4, the 2nd arm 5, the wrist section 6, etc., or a detector is draw from the side face of the base 1 from the exterior, and is contain in the duct section 13 at U typeface, and it lets it pass on the up frame of the turning section 2, and it is connect to the motor for actuation of each driving shaft. The hose 8 for tools, such as a hose which sends a welding caution line and coat gas to the tool 7 for processing, or a power cable Draw in from the underside of the base 1, and pull out the inside of the guide tube 22 on the up frame 21 of through and the turning section 2, and the mounting member 81 prepared in the 1st arm 4 and the 2nd arm 5 is minded. Even if the turning section 2 circles therefore it is giving, lifting and supporting slack, it is a fixed pivot S1. The hose 8 for tools passing through the inside of the guide tube 22 prepared in this alignment Since it can only twist in long spacing between the mounting members 83 from the base 1, the impossible force is not applied. Moreover, from a robot's lower part, since the hose 8 for tools start [be / it / under / of the guide tube 22 / letting it pass] from the up frame 21 of the turning section 2 Even if it circles in the turning section 2, in order that each arm may only circle around the guide tube 22, It becomes unnecessary to prepare the stand which the hose 8 for tools pulled out from the guide tube 22 do not bar actuation of each arm, and supports a hose etc. large space and near the robot like before.

[0008]

[Effect of the Invention] Since it is letting the hose for tools which prepare the guide tube which penetrates the up frame of the turning section from the underside of the base, and send a welding caution line, coat gas, power, etc. to the tool for processing pass according to this invention as stated above, actuation of each arm is not barred. Therefore, it is not necessary to prepare the stand which supports the hose for tools large space and near the robot like before, the hose for tools are processed in narrow space, and a limit is not given to actuation of an arm. And it is effective in the ability to offer the industrial robot which can perform installation and exchange of the hose for tools easily.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the side elevation showing the example of this invention.

[Drawing 2] It is the important section sectional side elevation showing the example of this invention.

[Drawing 3] It is the side elevation showing the conventional example.

[Description of Notations]

1 The base, 11 ejection hole, 3 reducer, 31 fixed part, 32 input shaft, 33 bearing, 34 output shaft, 35 reducer style, 36 drive motor, 37, 38 spur gear, the 4 1st arm, the 5 2nd arm. A stand, 12 Supporter material, 12a A centrum, 13 The duct section, 14 Oil seal, 2 The turning section, 21 An up frame, 22 A guide tube, 23 6 Wrist Section, 7 Tool for Processing, 8 Hose for Tools, 81 Mounting Member

[Translation done.]

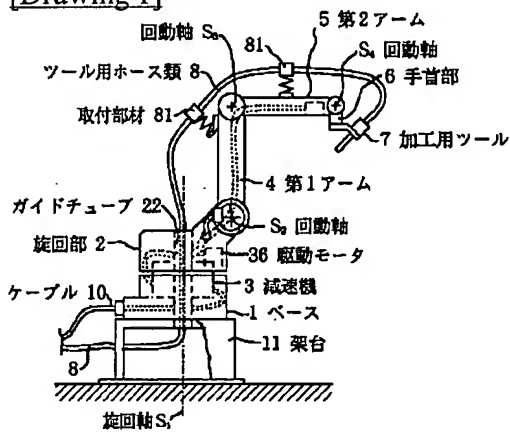
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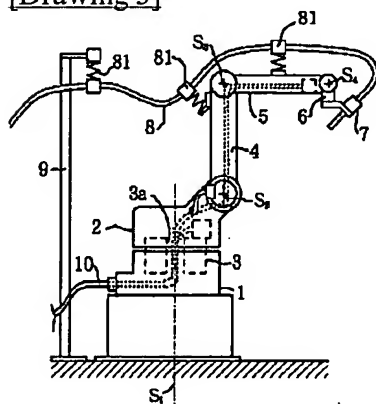
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DRAWINGS

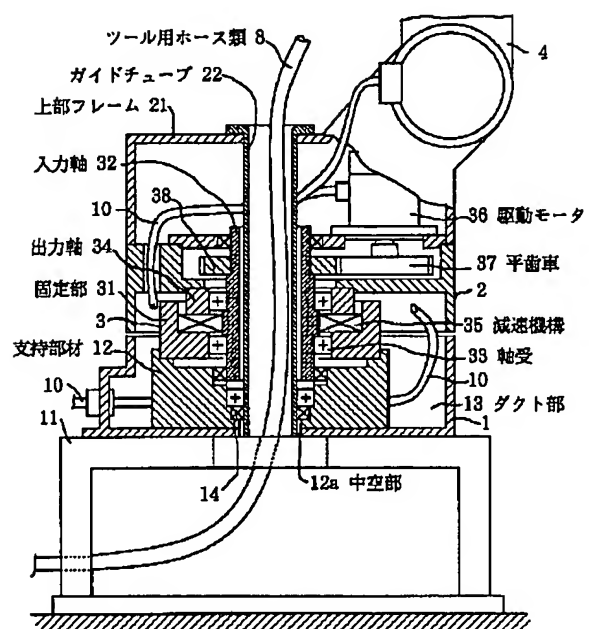
[Drawing 1]



[Drawing 3]



[Drawing 2]



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CLAIMS

[Claim(s)]

[Claim 1] The supporter material which has the centrum prepared in accordance with the vertical fixed pivot to the underside of the base, The turning section it was made to circle around said fixed pivot on said base, Said base and the reducer which has the input shaft of the shape of hollow established between the turning sections, In the industrial robot equipped with the arm prepared so that it might rotate above said turning section, the tool for processing attached at the head of said arm, and the hose for tools linked to said tool for processing The guide tube which passes along the inside of the input shaft of the shape of hollow of said reducer, and penetrates the up frame of said turning section from the lower part of said base, Prepare the duct section formed between said bases and said supporter material, and it pulls out above said turning section through said hose for tools in said guide tube from the underside of said base. The industrial robot characterized by containing the cable which supplies power to the motor for robot actuation in said duct section at U typeface.

[Translation done.]